CTC CLATRONIC®

AA 164

SERVICE MANUAL

STEREO INTEGRATED AMPLIFIER

CAUTION

⚠ Parts marked with sign are safety critical components.
They must always be replaced with identical components-
refer to the appropriate list and ensure exact replacement.

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■ SPECIFICATIONS

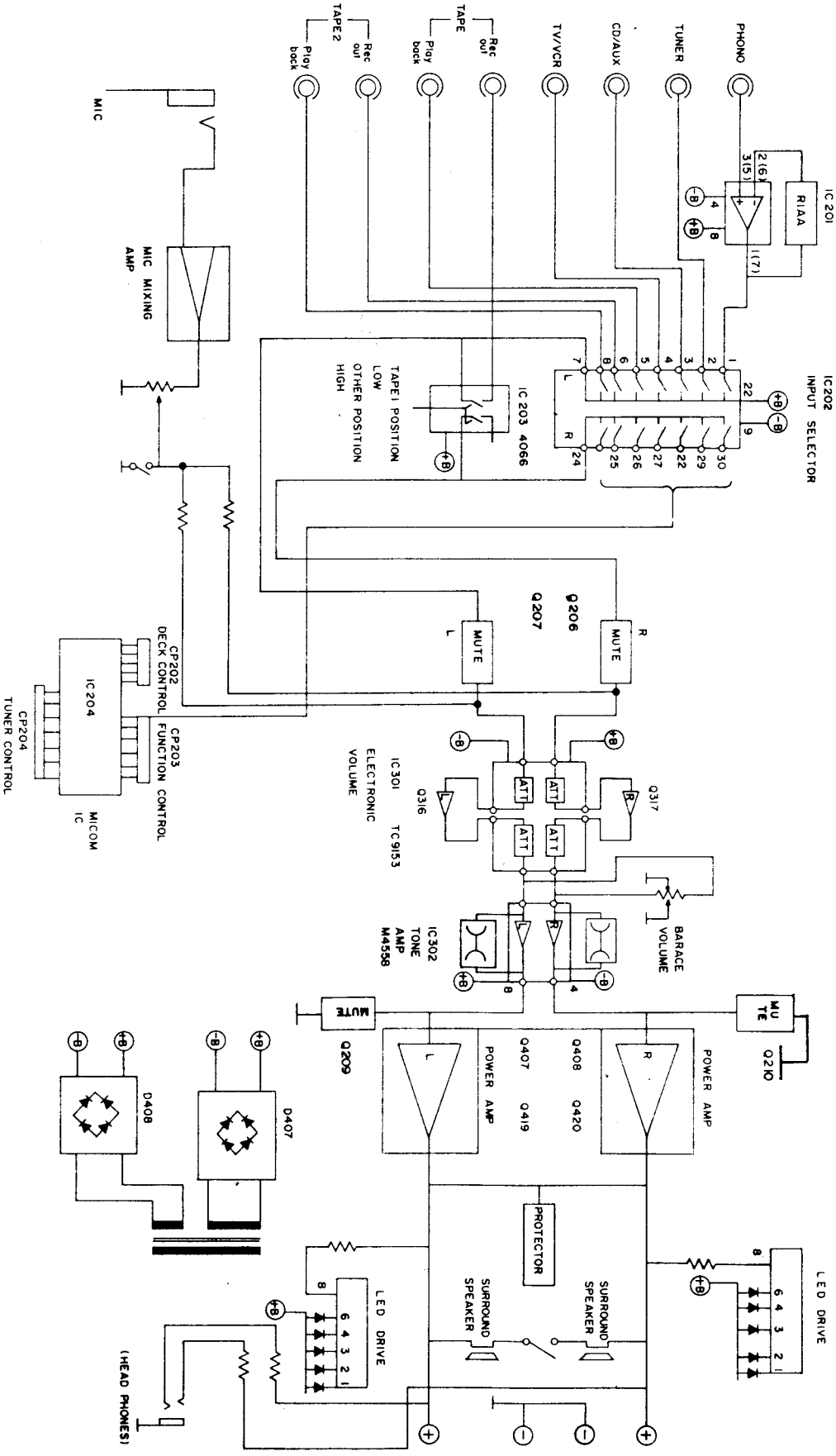
■ AMPLIFIER SECTION

Output power : 2 × 50W (8Ω 0.5%)
Input sensitivity/impedance
  PHONO : 2.5mV/47KΩ
  TUNER, CD/AUX. TV/VCR : 180mV/22KΩ
  TAPE 1 : 180mV/22KΩ
  TAPE 2 : 180mV/22KΩ
Phono maximum input voltage: 35mV
S/N
  PHONO : 65dB (IHFA: 75dB)
  TUNER, TAPE 1, 2. CD/AUX, TV/VCR: 86dB (IHFA: 96dB)
Frequency response
  PHONO : Riaa carve ±1dB (30Hz-15kHz)
  TUNER, TAPE 1, 2. CD/AUX, TV/VCR: 20Hz-50kHz (−3dB)
Tone control
  BASS (100Hz) : +10dB ~ −10dB
  TREBLE (10kHz) : +10dB ~ −10dB
Channel separation
  CD/AUX 1kHz : 55dB
  Load impedance : 8 ~ 16Ω

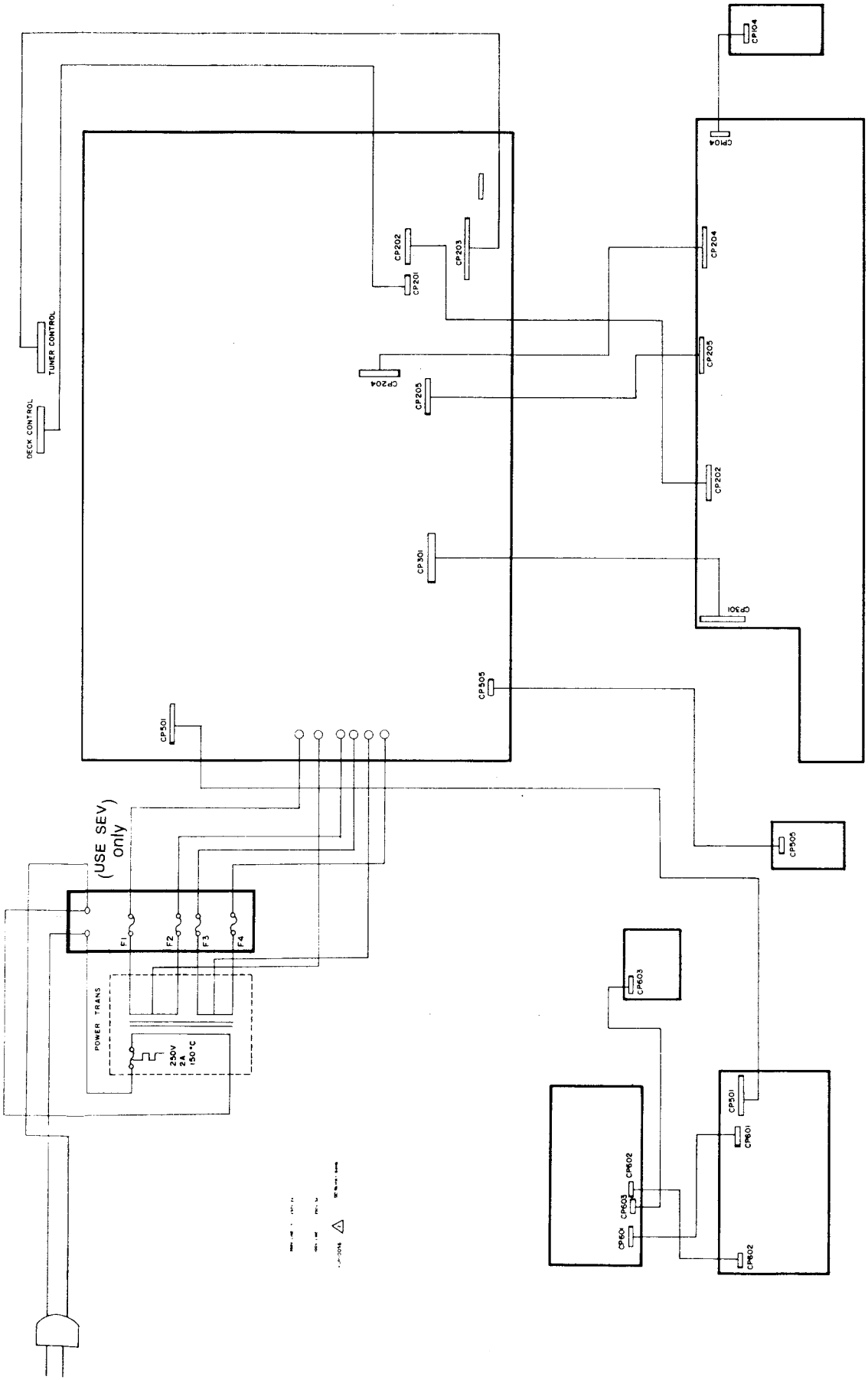
■ GENERAL

Power Source : AC 220V 50Hz
Power Consumption : 230W
Dimensions (W × H × D) : 430 × 250 × 110
Weight : 7 kg

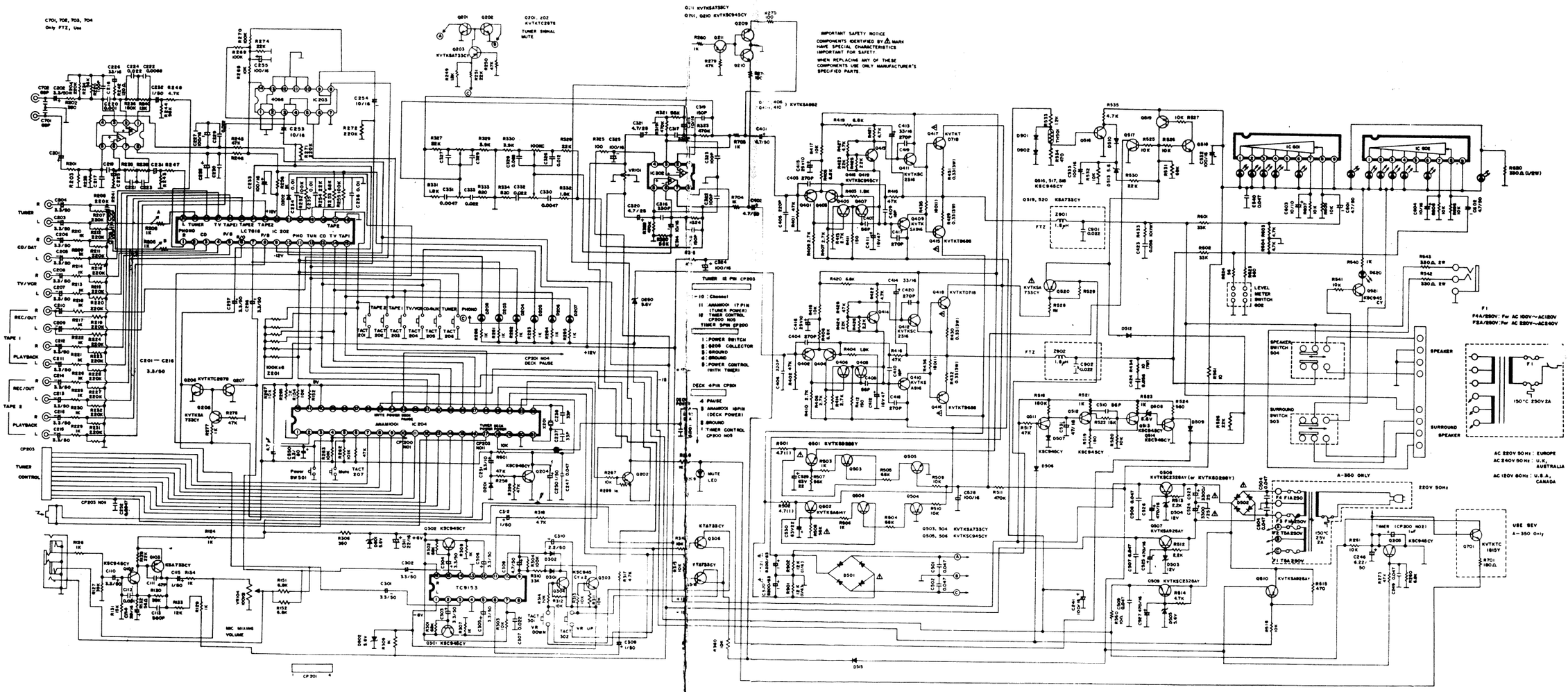
■ BLOCK DIAGRAM



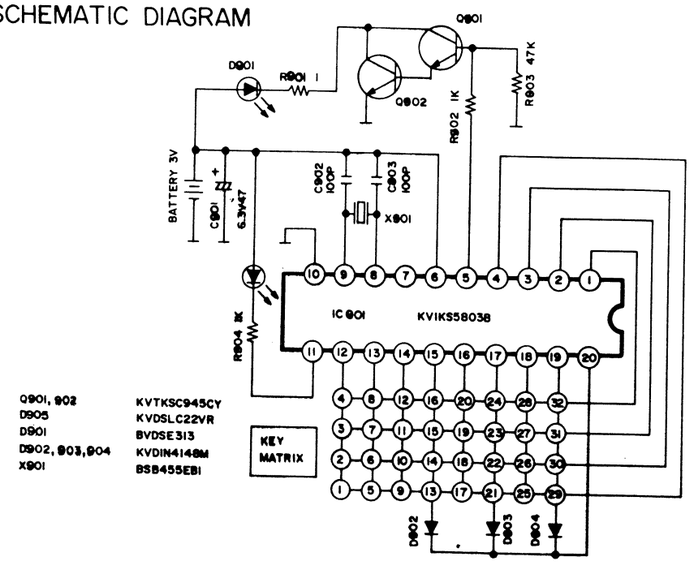
■ WIRING CONNECTION DIAGRAM



■ SCHEMATIC DIAGRAM



REMOCON TRANSMITTER SCHEMATIC DIAGRAM



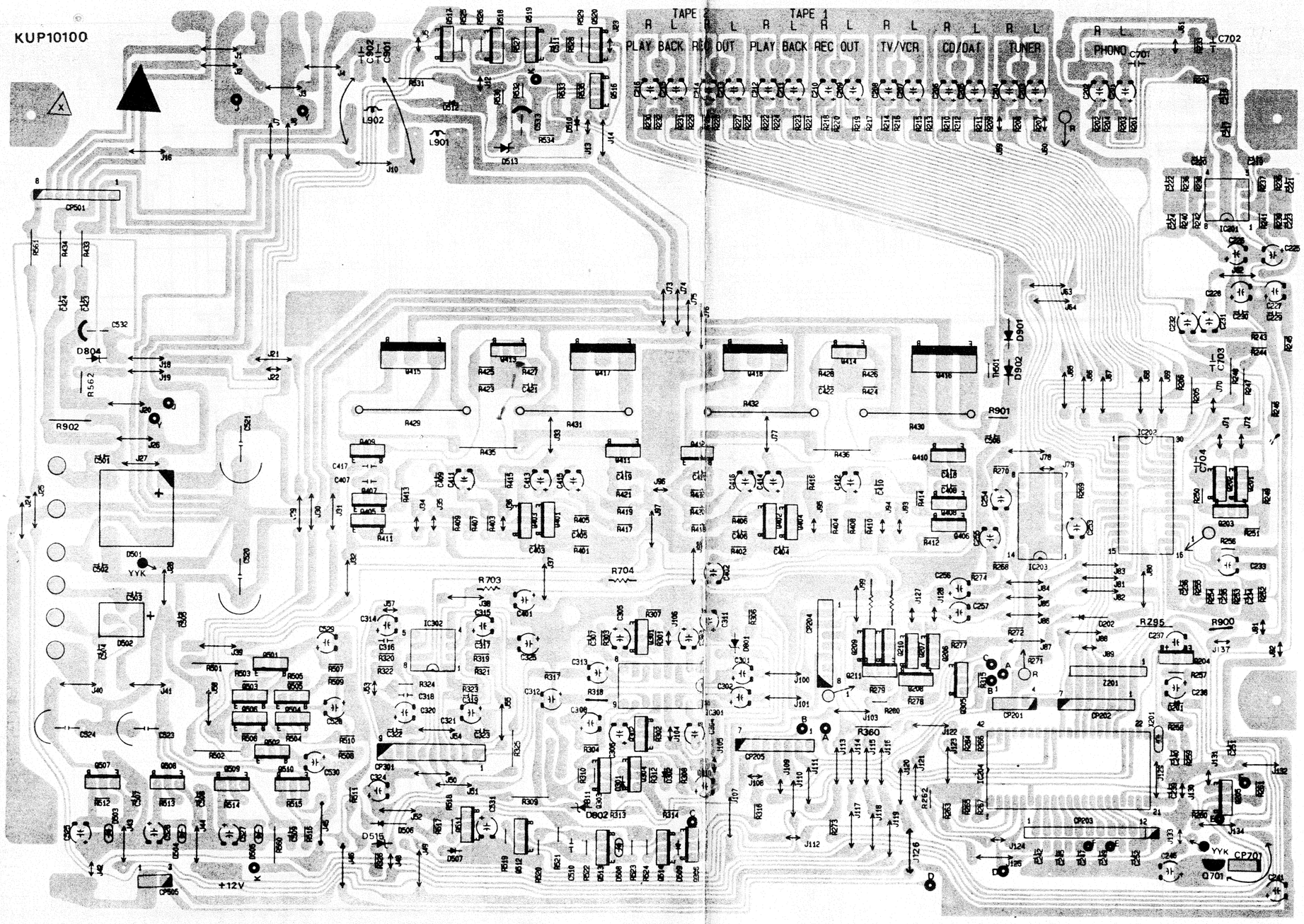
Q901, 902	KVTKSC945CY
D905	KVDSLC22VR
D901	BVDSE313
D902, 903, 904	KVDIN4148M
X901	BSB455EBI

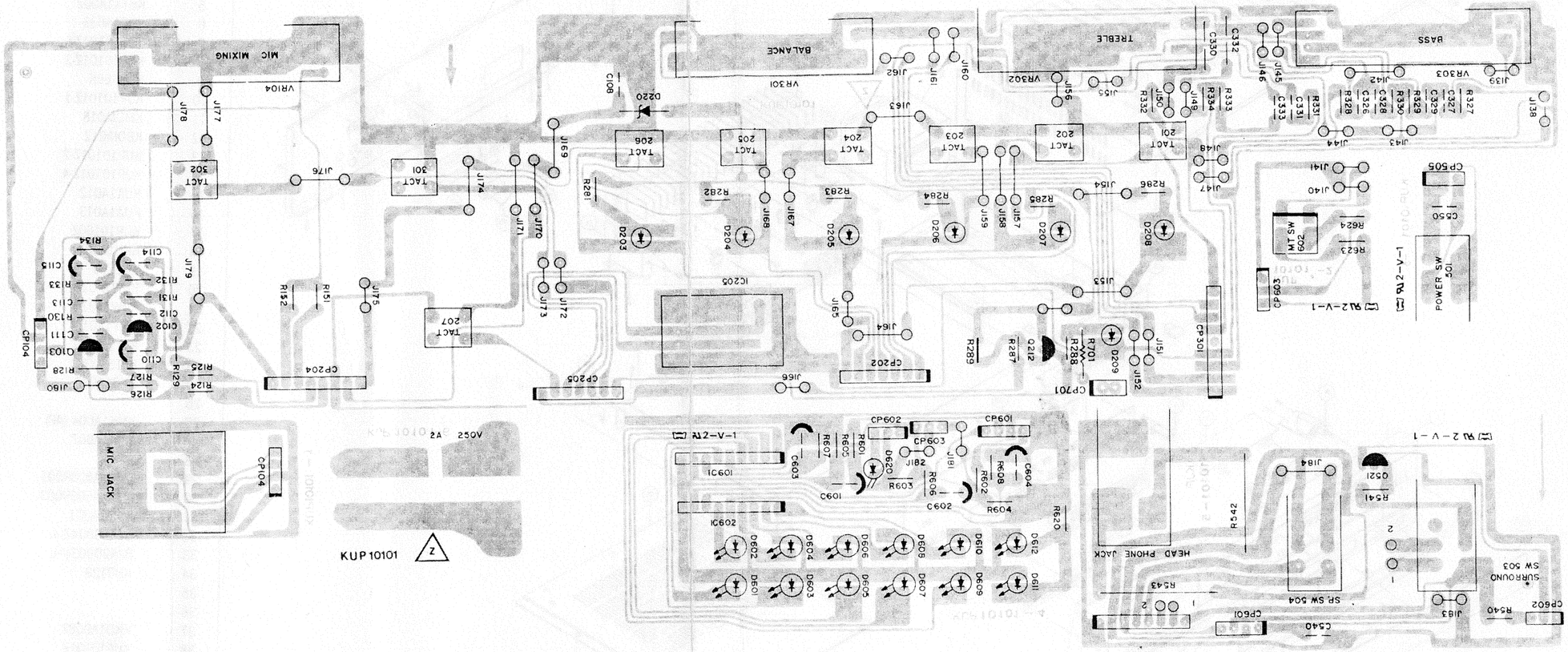
KEY MATRIX

NO	FUNCTION	NO	FUNCTION
1	AMP POWER	17	TAPE1
2	DECK POWER	18	TAPE 2
3	VOL DN	19	CH5
4	VOL UP	20	CH6
5	AUDIO MUTE	21	SEARCH
6	TUNER POWER	22	SEARCH
7	FM	23	SKIP
8	AM	24	SKIP
9	CD	25	
10	TUNER	26	
11	CH1	27	CH7
12	CH2	28	CH8
13		29	INTRO
14	TV/VCR	30	PLAY/PAUSE
15	CH3	31	STOP/CLEAR
16	CH4	32	CD POWER

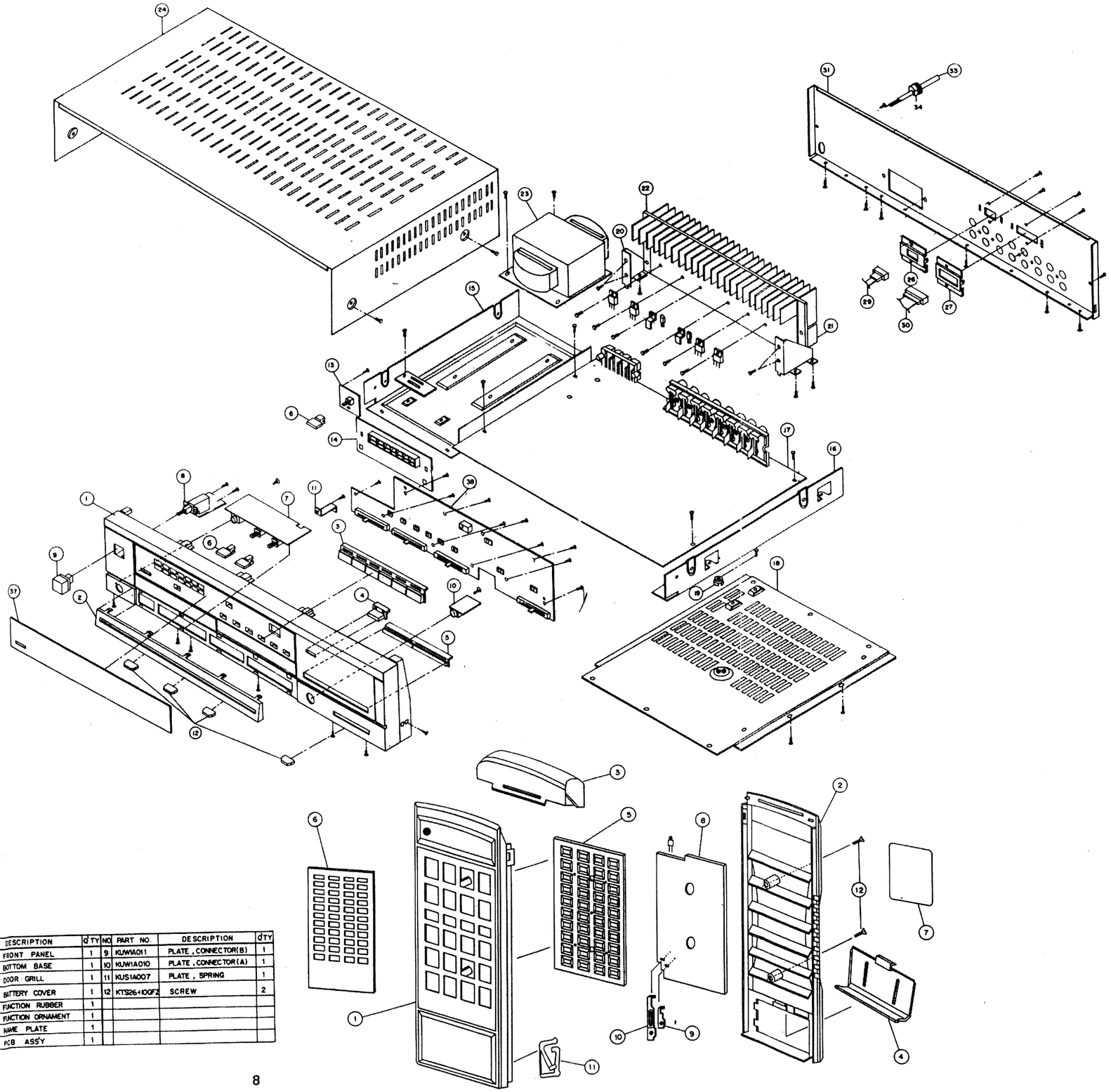
■ PRINTED CIRCUIT BOARDS

KUP10100




KUP10101
KUP10102
KUP10113Z
KUP10113Z SEV use only (A-350)
MIC MIXING
BALANCE
TREBLE
BASS
MIC JACK
HEAD PHONE JACK
POWER SW
SR SW 504
SURROUND SW 503
F1 T 5A 250V
F2 T 5A 250V
F3 F 1A 250V
F4 F 1A 250V

■ EXPLODED VIEW



REF. NO.	PARTS NO.	DESCRIPTION
1	KKM1A009	FRONT PANEL
2	KGR1A002	FRONT ORNAMENT
3	KBTX1A001	TACT KNOB
4	KBT1A001	TACT KNOB
5	KBTX1A002	TACT KNOB
6	KBC1A033	PUSH KNOB
7	KUP10101Z-5	SPEAKER SW. PCB
8	KUP10101Z-3	POWER SWITCH PCB
9	KBC666K	POWER KNOB
10	KUP10101Z-1	MIC JACK PCB
11	KMDIA018	PCB BRACKET
12	KBDIA012	SLIDER KNOB
13	KUP10101Z-2	L.E.D METTER SW. PCB
14	KUP10101Z-4	L.E.D METTER PCB
15	KUA1A012	CHASSIS (A)
16	KUA1A013	CHASSIS (B)
17	KUP10100Z	MAIN PCB
18	KKU1A007	BOTTOM BOARD
19	KHE170	P.C.B HOLDER
20	KUW1A016	HEAT SINK BRACKET
21	KUW1A015	HEAT SINK BRACKET
22	KMY1A018	HEAT SINK
23	KLT5T004Z	POWER TRANS (VDE/SEMICO)
23	KLT5T005Z	POWER TRANS (SAA)
24	KKC1A006	TOP CABINET
25		
26	KMK1A004 (4P)	CONNECTOR BRACKET
27	KMK1A007	CONNECTOR BRACKET
28		
29	KWZAA500R001	WIRE ASS'Y
30	KWZAA500R003	WIRE ASS'Y
31	KUK2A001	REAR PANEL
33	BJA2S004Z-L	AC CORD (SAA)
33	BJA2B003Y-L	AC CORD (VDE/SEMICO)
34	KHR129	CORD PUSHING
35		
36		
37	KKD1A008Z	FRONT WINDOW
38	KUP10101Z	FRONT P.C.B
39	KTB3+8JFZ	SCREW
40	KTB3+10GFZ	SCREW
41	KTB3+10G	SCREW
42	KTB3+12J	SCREW
43	KTWS3+10G	SCREW

NO	PART NO	DESCRIPTION	Q'TY	NO	PART NO	DESCRIPTION	Q'TY
1	KKM1A013	FRONT PANEL	1	9	KUW1A011	PLATE, CONNECTOR(B)	1
2	KKU1A010	BOTTOM BASE	1	10	KUW1A010	PLATE, CONNECTOR(A)	1
3	KGG1A001	DOOR GRILL	1	11	KUS1A007	PLATE, SPRING	1
4	KKK1A004	BATTERY COVER	1	12	KTS26+10GFZ	SCREW	2
5	KHG1A031	FUNCTION RUBBER	1				
6	KGX1A062	FUNCTION ORNAMENT	1				
7	KGT1A036	NAME PLATE	1				
8	KUP100	PCB ASS'Y	1				

■ RESISTORS & CAPACITORS

Ref. No.	Part No.	Value
R921	KRD20SJ010A	1
R922, 924	KRD20SJ102A	1K
R528	KRD20SJ105A	1M
R901, 902	KRD20SJ123A	12K
R900, 923	KRD20SJ473A	47K
R533	KRD20SJ562A	5.6K
R245, 246, 256, 326	KRD20TJ101T	100
R329, 330	KRD20TJ392T	3.9K
R127, 130	KRD20TJ393T	39K
R317, 318, 421, 422	KRD20TJ472T	4.7K
427, 428, 535, 603		
604		
R250, 258, 259, 262	KRD20TJ473T	47K
263, 273, 278, 279		
401, 402, 415, 416		
517		
R319, 322, 323, 324	KRD20TJ474T	470K
511		
R132	KRD20TJ560T	56
R524, 623, 624	KRD20TJ561T	560
R233, 234, 243, 244	KRD20TJ563T	56K
320, 321, 507, 508		
R237, 238	KRD20TJ680T	68
R288	KRD20TJ681T	680
R151, 152, 260, 405	KRD20TJ682T	6.8K
406, 419, 420		
R253, 301, 302, 504	KRD20TJ683T	68K
505		
R333, 334	KRD20TJ821T	820
R620	KRD25FJ271P	270
R560, 561	KRD25TJ100T	10
R325	KRD25TJ101T	100
R205, 295, 309	KRD25TJ102T	1K
R247, 248	KRD25TJ472T	4.7K
R531	KRD25TJ683T	68K
R433, 434	KRD50FJ100P	(1/2) 10
R429, 430, 431, 432	KRF3CJR33P	(3W) 0.33
R435, 436	KRG1ANJ181P	(1W) 180
R501, 502	KRG1ANJ4R7P	(1W) 4.7
R542, 543	KRG2ANJ331P	(2W) 330
R124, 126, 129, 134	KRD20TJ102T	1K
206, 209, 210, 213		
214, 217, 218, 221		
222, 229, 230, 277		
280, 281, 282, 283		
284, 285, 286, 289		
307, 308, 503, 506		
521, 523, 540, 225		
226		
R296, 403, 404, 425	KRD20TJ222T	2.2K
426, 512, 513, 514		
R251, 257, 261, 264	KRD20TJ103T	10K
265, 266, 267, 268		
287, 303, 311, 312		
313, 314, 315, 316		
360, 417, 418, 509		
510, 516, 520, 525		
526, 527, 532, 541		
605, 606, 607, 608		
R252, 255, 269, 270	KRD20TJ104T	100K
304		

Ref. No.	Part No.	Description
R241, 242	KRD20TJ121T	120
R133, 239, 240	KRD20TJ123T	12K
R411, 412	KRD20TJ151T	150
R131, 522	KRD20TJ153T	15K
R519	KRD20TJ18T	180K
R240, 331, 332	KRD20TJ182T	1.8K
R235, 236, 518	KRD20TJ184T	180K
R275, 276	KRD25TJ101T	100
R128, 254, 274, 327	KRD20TJ223T	22K
328, 423, 424, 530		
562		
R407, 408, 409, 410	KRD20TJ272T	2.7K
414		
R203, 204, 207, 208	KRD20TJ224T	220K
211, 212, 215, 216		
219, 220, 223, 224		
227, 228, 231, 232		
271, 272		
R534	KRD20TJ331T	330
R310, 601, 602	KRD20TJ333T	33K
R306	KRD20TJ361T	360
R201, 202	KRD20TJ391T	390
R703, 704	KRD20TJ102T	1K
R701 (A-350 USE)	KRD25SJ181A	180
R620	KRD50FJ331P	
C113	KCKR1H561KB	560P
C423, 424	KCQI1H563KZ3	0.056
C409, 410	KCCR1H180K	18P
C421, 422	KCCR1H220K	22P
C239, 240	KCCR1H330K	33P
C111	KCCR1H470K	47P
C407, 408, 510	KCCR1H560K	56P
C601	KCEA0JU470E	47
C525, 526, 527	KCEA1CS471E	470
C253, 254, 603, 604	KCEA1CU100B	10
C314, 315	KCEA1CU100E	10
C241, 255, 311, 324	KCEA1CU101B	100
325, 528, 532, 533		
C227, 228	KCEA1CU101E	100
C114	KCEA1CU220B	22
C225, 226, 413, 414	KCEA1CU330B	33
C523, 524	KCEA1CU332	3300 ⚠
C411, 412, 531	KCEA1CU470B	47
C415, 416	KCEA1EU100B	10
C115, 231, 237, 312	KCEA1HU010B	1
C313		
C232	KCEA1HU010E	1
C310	KECA1HU2R2B	2.2
C257, 302, 303, 305	KCEA1HU3R3E	3.3
306		
C601, 602	KCEA1HU4R7B	4.7
C110, 201, 202, 203	KCEA1HU3R3B	3.3
204, 205, 206, 207		
208, 209, 210, 211		
212, 213, 214, 215		
216, 238, 256, 301		
304, 401, 402		
C308, 320, 321	KCEA1HU4R7E	4.7
C529, 530	KCEA1JS220B	22
C520, 521	KCETS63V822U	63V 8200 ⚠
C219, 220	KCFRD102KDY	1000P

Ref. No.	Part No.	Description
C326, 327	KCFRD123KDY	0.012
C221, 222, 333	KCFRD223KDY	0.022
C331	KCFRD472KDY	0.0047
C223, 224	KCFRD682KDY	0.0068
C328, 329	KCFRD683KDY	0.068
C332	KCFWD223KDY	0.022
C330	KCFWD472KDY	0.0047
C602, 603	KCKF1H101KB	100P
C217, 218, 322, 323	KCKR1H101KB	100P
C112, 251	KCKR1H102KB	1000P
C233, 234, 235, 236	KCKR1H103ZF	0.01
550		
C318, 319	KCKR1H151KB	150P
C405, 406	KCKR1H221KB	220P
C229, 230, 307	KCKR1H223ZF	0.022
C403, 404, 417, 148	KCKR1H271KB	270P
419, 420		
C316, 317	KCKR1H331KB	330P
C242, 245, 246, 252	KCKR1H472KB	0.0047
C247, 249, 501, 502	KCKR1H473ZF	0.047
503, 504, 505, 506		
507, 508, 509, 511		
540		
C901, 902	KCKF1H223ZF	0.022
C701, 702	KCKF1H680K	68P
C703, 704 (AA-164 USE)	KCKF1H101KB	100P

■ REPLACEMENT PARTS LIST

Q102	KVTKSC945CY	T.R
Q103	KVTKSA733CY	T.R
Q201	KVTKTC2878A	T.R
Q202	KVTKTC2878A	T.R
Q203	KVTKSA733CYT	T.R
Q204	KVTKSC945CY	T.R
Q205	KVTKSC945CYT	T.R
Q206	KVTKTC2878A	T.R
Q207	KVTKTC2878A	T.R
Q208	KVTKSA733CYT	T.R
Q209	KVTKSC945CYT	T.R
Q210	KVTKSC945CYT	T.R
Q211	KVTKSA733CY	T.R
Q212	KVTKSA733CYT	T.R
Q301	KVTKSC945CYT	T.R
Q302	KVTKSC945CYT	T.R
Q303	KVTKSC945CYT	T.R
Q304	KVTKSC945CYT	T.R
Q305	KVTKSA733CYT	T.R
Q306	KVTKSA733CYT	T.R
Q401	KVTKSA992F	T.R
Q402	KVTKSA922F	T.R
Q403	KVTKSA922F	T.R
Q404	KVTKSA922F	T.R
Q405	KVTKSC1845F	T.R
Q406	KVTKSC1845F	T.R
Q407	KVTKSC1845F	T.R
Q408	KVTKSC1845F	T.R
Q409	KVTKSA916Y	T.R
Q410	KVTKSA916Y	T.R
Q411	KVTKSC2316Y	T.R
Q412	KVTKSC2316Y	T.R
Q413	KVTKSC945CYT	T.R

Ref. No.	Part No.	Description
Q414	KVTKSC945CYT	T.R
Q415	KVTKTB6880	T.R ⚠
Q416	KVTKTB6880	T.R ⚠
Q417	KVTKTD7180	T.R ⚠
Q418	KVTKTD7180	T.R ⚠
Q701 (A-350 USE)	KVTKTC1815Y	T.R
Q501	KVTKSD288Y	T.R ⚠
Q502	KVTKSA614Y	T.R ⚠
Q503	KVTKSA733CYT	T.R
Q504	KVTKSA733CYT	T.R
Q505	KVTKSC945CYT	T.R
Q506	KVTKSC945CYT	T.R
Q507	KVTKSA928AY	T.R
Q508	KVTKSC2328AY	T.R
	(OR KVTKSD288Y)	
Q509	KVTKSC2328AY	T.R
Q510	KVTKSA928AY	T.R
Q511	KVTKSC945CYT	T.R
Q512	KVTKSC945CYT	T.R
Q513	KVTKSC945CYT	T.R
Q514	KVTKSC945CYT	T.R
Q516	KVTKSC945CYT	T.R
Q517	KVTKSC945CYT	T.R
Q518	KVTKSC945CYT	T.R
Q519	KVTKSA733CYT	T.R
Q520	KVTKSA733CYT	T.R ⚠
Q521	KVTKSC945CYT	T.R
Q901	KVTKSC945CY	T.R
Q902	KVTKSC945CY	T.R
OTHER	KIP10055Z	MAIN PCB AUTO ASS'Y
OTHER	KIP10056Z	PCB AUTO ASS'Y
OTHER	KKM1A009HA	FRONT PANEL ASS'Y
OTHER	KOP10055Z	MAIN PCB ASS'Y
OTHER	KOP10056Z	PCB ASS'Y
OTHER	KOP10059Z	REMOCON PCB ASS'Y
OTHER	KUK1A001HA	REAR PANEL ASS'Y
OTHER	KUR004Z-SET	REMOCON TRANSMITTER
IC201	BVIM5220P	I.C
IC202	BVILC7818	I.C
IC203	BVI4066BC	I.C
IC204	BVIANAM1001	I.C
IC205	BRVSBX1483-52	HYBRID, I.C
IC301	BVITC9153AP	I.C
IC302	BVIM5220P	I.C
IC601	KVIBA6124	I.C
IC901	KVIKS5803B	I.C
IC602	KVIBA6124	I.C
D201	KVD1N4148MT	DIODE
D202	KVD1N4148T	DIODE
D203	KVDKLR113ET	L.E.D
D204	KVDKLR113ET	L.E.D
D205	KVDKLR113ET	L.E.D
D206	KVDKLR113ET	L.E.D
D207	KVDKLR113ET	L.E.D
D208	KVDKLR113ET	L.E.D
D209	KVDKLR113ET	L.E.D
D220	KVDUZ5.6BM	DIODE, ZENER
D301	KVD1N4148MT	DIODE
D302	KVD1N4148MT	DIODE
D501	BVDCP802	DIODE ⚠
D502	BVDAM152	DIODE ⚠
D503	KVDUZ12BM	DIODE, ZENER

Ref. No.	Part No.	Description
D504	KVDUZ12BM	DIODE, ZENER
D505	KVDUZ5.6BM	DIODE, ZENER
D506	KVD1N4148T	DIODE
D507	KVD1N4148MT	DIODE
D508	KVDUZ5.6BM	DIODE, ZENER
D509	KVD1N4148MT	DIODE
D510	KVD1N4148MT	DIODE
D512	KVD1N4148MT	DIODE
D513	KVDUZ5.6BM	DIODE, ZENER
D515	KVD1N4148T	DIODE
D533	KCEA1CU101B	CAP, ELECT
D601	KVDDL1LYANV	L.E.D (AMBER)
D602	KVDDL1LYANV	L.E.D (AMBER)
D603	KVDDL1LYANV	L.E.D (AMBER)
D604	KVDDL1LYANV	L.E.D (AMBER)
D605	KVDDL1LYANV	L.E.D (AMBER)
D606	KVDDL1LYANV	L.E.D (AMBER)
D607	KVDDL1LYANV	L.E.D (AMBER)
D608	KVDDL1LYANV	L.E.D (AMBER)
D609	KVDDL1LYANV	L.E.D (AMBER)
D610	KVDDL1LYANV	L.E.D (AMBER)
D611	KVDDL1LYANV	L.E.D (AMBER)
D612	KVDDL1LYANV	L.E.D (AMBER)
D620	KVDKLG113E	L.E.D
D801	KVDUZ5.6BM	DIODE, ZENER
D802	KVDUZ5.6BM	DIODE, ZENER
D901	BVDSE313	L.E.D
D902	KVD1N4148M	DIODE
D902	KVD1N4148M	DIODE
D903	KVD1N4148M	DIODE
D904	KVD1N4148M	DIODE
D905	KVDSLC22VR	L.E.D (RED)
CP104	KWD2204180PP	WIRE ASS'Y
CP200	KJP05GA1M	WAFER
CP201	KJP04GA1M	WAFER
CP202	KJP07GA1M	WAFER

Ref. No.	Part No.	Description
CP202	KWD07240PH001	WIRE ASS'Y
CP203	KJP12GA1M	WAFER
CP204	KJP08GA1M	WAFER
CP204	KWE6200G001HH	WIRE ASS'Y
CP205	KJP07GA1M	WAFER
CP205	KWD07150PH001	WAFER ASS'Y
CP301	KJP09GA1M	WAFER
CP301	KWE7200G001HH	WIRE ASS'Y
CP501	KWD08280PH001	WIRE ASS'Y
CP505	KJP03GA1M	WAFER
CP505	KWD03220PH001	WIRE ASS'Y
CP601	KWD2204170PP	WIRE ASS'Y
CP602	KWD2203200PP	WIRE ASS'Y
CP603	KWD2203170PP	WIRE ASS'Y
S103	KSH2B02A-G	SW, SP
S104	KSH2B02A-G	SW, SP
S201	KSH1A06-D	SW, TACT
S202	KSH1A06-D	SW, TACT
S203	KSH1A06-D	SW, TACT
S204	KSH1A06-D	SW, TACT
S205	KSH1A06-D	SW, TACT
S206	KSH1A06-D	SW, TACT
S207	KSH1A06-D	SW, TACT
S301	KSH1A06-D	SW, TACT
S302	KSH1A06-D	SW, TACT
S501	KSH2B10-T	SW, POWER
S602	KSH2B04-K	SW, PUSH
TH501	BRTP4A471BC	THERMISTOR, PTC
VR101	KVV2M05B104G	RES, VARIABLE (MIC MIXING)
VR301	KVV1M04W104G	RES, VARIABLE (BALACE)
VR302	KVV2M04C104G	RES, VARIABLE (TONE)
VR303	KVV2M04C104G	RES, VARIABLE (TONE)
X202	BVBCSB800P	OSC, CERAMIC
X901	BSB455EB1	OSC, CERAMIC
Z201	BRGLD6X104J	RES, NETWORK
Z901	KLEYK1R8KH	COIL
Z902	KLEYK1R8KH	COIL (A-350 USE)

■ RESISTORS AND CAPACITORS

Notes: • Part numbers are indicated on most mechanical parts.
Please use this part number for parts order.
• Important safety notice.
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
• The unit of resistance is OHM (Ω).
K = 1000Ω, M = 1000kΩ
• The unit of capacitance is MICROFARAD (μF).
P = 10^{-6}μF.

■ Numbering System of Resistor

Example

KRD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
KRD:Carbon	20:1/5W	F: ± 1%
KRG: Metal Oxide	25:1/4W	J: ± 5%
	50:1/2W	K: ± 10%
	12:1/2W	
KRF: Metal Cement	1:1W	
	2:2W	
	3:3W	

■ Numbering System of Capacitor

Example

KCBS	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
KCB:Ceramic	0J:6.3V	1H:50V DC	C: ± 0.25pF
KCC:Ceramic	1A:10V	1:125V DC	G: ± 2%
KCK: Ceramic	1C:16V	KC:400V AC	J: ± 5%
KCFRD: Semiconduction	1E:25V	D25V DC	K: ± 10%
KCQI:Polyester	1H:50V		Z: + 80%, - 2(
KCQP:Polypropylene	1V:35V		
KCQS:Polystyrol	25:25V		